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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,149	09/12/2001	Naomasa Shiraishi	213876US2PCT	2535

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

MATHEWS, ALAN A

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/926,149

Applicant(s)

SHIRAISHI, NAOMASA

Examiner

Alan A. Mathews

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 54 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 10, 12-16, 22, 23, 27-30, 34, 36-47, 50, 53 is/are rejected.
- 7) ☒ Claim(s) 3-9, 11, 17-21, 24-26, 31-33, 35, 48, 49, 51 and 52 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12/01.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because figure 3 does not correlate with figure 1 and the specification. Figure 3 shows supply valve 23 supplying the WI room, while figure 1 (and also the specification) discloses supply valve 23 supplying room RI. Also, figure 3 shows supply valve 47 supplying room RI, while figure 1 (and also the specification) discloses supply valve 47 supplying room WI. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 40 is objected to in that there is no proper antecedent basis for “said gas replacement”, since the term “replacement” was not previously recited.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2851

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 10, 12-16, 34, 36-38, 40- 44, and 50 is rejected under 35 U.S.C. 102(b) as being anticipated by Miyaji et al. (U. S. Patent No. 5,559,584). Miyaji et al. discloses in figure 5 and column 7, lines 60-67, and column 8, a plurality of sealed rooms 1, 12, and 13, in each of which a mask (reticle) is temporarily stored. Mask room 1 covers an optical path of the exposure light. Transport mechanisms 15 and 16 transport the mask between sealed rooms 1, 12, and 13. Column 3, lines 41-42, and 65 disclose the use of an energy beam in the ultraviolet range. The shutters  $S_1$  and  $S_2$  are being opened and closed for transporting reticles  $R_1$ ,  $R_2$ , and  $R_3$  etc. from room 13 into room 12 and then into room 1. During all the openings and closing of the shutters  $S_1$  and  $S_2$ , the concentrations of impurities in mask room 1 would be different than the impurities in room 12. One example of this opening and closing of the shutters is noted in column 4, lines 32-40, where the inert gas atmosphere in the second chamber is broken. With respect to claim 38, the concentration of impurities in room 12 would be higher than the concentration of impurities in room 1.

4. Claims 22, 23, 27-29 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishi (U. S. Patent No. 6,335,787, which is the U. S. equivalent to the Japanese patent document 9-246140 A cited on Applicant's PTO-1449). Nishi discloses in figure 9, and column 25, lines 26-67, and columns 26-29, a plurality of sealed rooms 114 and 115, each of which temporarily stores a substrate. Element 114 is the substrate room that covers an optical path. Column 26,

Art Unit: 2851

lines 23-41, and 60-65, discloses a gas volume controller 128A that supplies a specific gas (nitrogen) to wafer transfer unit 115. Nitrogen has a characteristic of absorbing little of the exposure light. The impurities include ozone (see column 26, lines 2-10). Controller 128A controls gas to the wafer transfer system unit 115 (see column 26, lines 37-39). Controller 131A controls gas to substrate room 114. Elements 137A to 137D are concentration sensors. With respect to claim 28, figure 1 discloses an interferometer 24. With respect to claim 29, column 9, lines 9-13 disclose the use of an air bearing for wafer stage 22, which is a gas-static-pressure bearing unit.

5. Claims 30, 45, 46 and 53 are rejected under 35 U.S.C. 102(e) as being anticipated by the Japanese patent document 2000-19721. The Japanese patent document 2000-19721 discloses in figure 2 an exposure apparatus with illumination means 50, 51 is the reticle (mask) unit, element 52 is the reticle conveyance unit, 54 is the projection lens and 56 is the wafer(substrate) stage. Figure 1 discloses a sealed room 16 that stores the reticle (mask) 1. The pellicle 2 is the sealed mask case. An inert gas (specific gas) charges the sealed mask case containing mask 1 with the specific gas. With respect to claim 45, element 16 could be considered a gas-replacement room. With respect to claim 53, the reference is interpreted in a slightly different manner. The pellicle 2 is the mask having a thin film attached thereto (that is what pellicles are). The sealed space includes element 16. The low-absorbent (inert) gas is introduced via element 21.

6. Claim 50 is rejected under 35 U.S.C. 102(e) as being anticipated by Miwa et al. (U. S. Patent No. 6,590,631) Figures 1 and 2 and column 3, lines 11-22, disclose a plurality of sealed

rooms 9 and 12 in each of which a mask is temporarily stored. Sealed room 9 is considered to be a mask room that covers an optical path. Mask changing means 11 is the transport mechanism that transports the mask between the sealed rooms. Column 2, lines 52-63 disclose an energy-beam-emitting portion (laser) 1 that irradiates the mask with an energy beam in an ultraviolet range. It is further noted that element 24 provides an inert gas to sealed rooms 9 and 12.

***Claim Rejections - 35 USC § 103***

7. Claims 45-47 and 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyaji et al. (U. S. Patent No. 5,559,584) in view of the Japanese patent document 9-197652 (cited on Applicant's PTO 1449) or Hamada et al. (U. S. Patent No. 5,723,860). Miyaji et al. discloses in figure 5 and column 7, lines 60-67, and column 8 and 9, a gas replacement room 12. With respect to claim 53, Miyaji et al. discloses in figure 5 and column 7, lines 60-67, and column 8, filling a sealed space 1 that covers an optical path of the exposure light with low-absorbent nitrogen gas (see column 8, lines 47-50). Thus, Miyaji et al. discloses the invention except for specifically disclosing that the gas replacement room or the mask (reticle) has a thin film attached thereto. The Japanese patent document 9-197652 discloses in figures 1 and 2 reticles 3 having a thin film 2 and vent holes 6 for the well-known purpose of protecting the reticles. Hamada et al. discloses in figure 2 providing reticles (photomask) 5 with a thin film 2 for the well-known purpose of protecting the reticles. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide Miyaji et al. with a gas-replacement room or reticles having a thin film (these are called pellicles in the art) in view

of the Japanese patent document 9-197652 or Hamada et al. for the well-known purpose of better protecting the reticles and thus producing better final products.

***Allowable Subject Matter***

8. Claim 54 is allowed. Claims 3-9, 11, 17-21, 24-26, 31-33, 35, 48-49, 51, and 52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Sego and Hong are cited to show pellicles which have thin films or membranes. The patent to Arakawa is cited to show removing impurities in figure 1. The patents on Applicant's PTO 1449 are cited for the same reasons Applicant cited them in his INFORMATION DISCLOSURE STATEMENT.

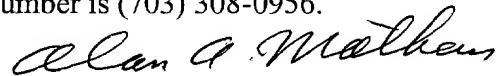
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (703) 308-1706. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone numbers for the

Art Unit: 2851

organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink that reads "Alan A. Mathews". The signature is written in a cursive, flowing style.

Alan A. Mathews  
Primary Examiner  
Art Unit 2851

AAM  
August 5, 2003